Chapter 10

Conclusions

For *in situ* conservation of wild relatives of crop plants (WRCPs), it is necessary to know which WRCPs are thriving well and in which kind of habitats A knowledge of autecology and biology of WRCP of interest and community ecology of the vegetation to which it belongs, its interspecific association and interdependence with other components of the ecosystem is also necessary Based on such information individual species-specific or multispecies, multilocation (multihabitat) *in situ* conservation strategies could be planned

A logical approach for maximising number of species being saved while selecting sites for *in situ* conservation is given In this approach, following four methods are used for a data-set from Uttara Kannada and discussed a) testing all possible combinations, b) testing limited combinations that are more likely to have optimal solution, c) pooling similar sites into clusters of site(s) of manageable number and testing all possible combinations, and d) greedy method The first three methods could be considered further advancements over the fourth method which is commonly used at present but it is not foolproof The approach can be used at all the levels of spatial scale This would be helpful in maximising the number of species being saved either through *in situ* conservation or maximising the number of accessions conserved through *ex situ* conservation

The basic idea behind *in situ* conservation is to maintain the concerned organisms in their natural habitats where they are thriving well and are in good relationship and evolving with other

components of the ecosystem Therefore, it is necessary to find out the order of habitat preference for species of interest Abundance, frequency of occurrence, quality of habitat, habitat preference, and species association of 50 WRCPs is discussed in detail This would help in decision making about selection of sites if species-specific approaches are taken for their *in situ* conservation

The fact that species of interest are co-occurring in one or more habitats forces us to think for common caring strategies for such co-occurring species Therefore, 50 chosen WRCPs were classified to find out association among themselves and habitats of these species clusters were characterised and the successional gradient of these 50 WRCPs was worked out by reciprocal averaging Such information would help in taking multispecies, multihabitat approach for *in situ* conservation An example is given from Uttara Kannada and the idea could be extended to any level of spatial scale

The landscape of Uttara Kannada is made of a number of landscape elements or habitat types The 46 sampled sites representing a number of major habitat types were classified based on presence/absence of 50 chosen WRCPs and the resulting 13 site-clusters were characterized based on 11 community parameters One site cluster had no WRCP Therefore, all possible combinations could be tested for the remaining 12 site-clusters having 50 chosen WRCPs If we consider only these WRCPs then the resulting combinations of site-clusters saving maximum WRCPs could be selected for *in situ* conservation However, only WRCPs alone cannot be conserved in isolation (devoid of other organisms) Other associated plants and all components of the ecosystem will have to

be maintained Moreover, habitats or LSEs are constantly being transformed by anthropogenic factors into more economically valuable LSEs Therefore, conservation strategies will have to be planned with full consideration of the ongoing habitat changes

A habitat approach is discussed for conserving rare *Myristica* swamp habitats of the Western Ghats It is shown that despite being part of evergreen forests, *Myristica* swamps are a distinct habitat type within evergreen forests It is suggested to locate remaining *Myristica* swamps and remove threats, if any To attract attention, declaring them "burning spots" within "hot spot" and 'spices' gene sanctuary" might also help in saving them Linking their conservation with ecotourism business might also help

For *Amorphophallus* species, *in situ* conservation measures are discussed based on a detailed study of their ecology and biology The long term maintenance of populations of *Amorphophallus* would require simultaneous attention to the conservation of preferred habitats of the plants as well as quality of the habitat for their pollinators and seed dispersal agents

For wild rices and their weedy relatives (*Oryza* species), a detailed analysis of the current scenario of their status and perceived threats to their populations is given Introducing them into Ramsar wetlands, linking their *in situ* conservation with bird watching and ecotourism, and taking help of local people dependent on wild rices and these wetlands might help